

Dated: 12.09.2019

**CORRIGENDUM#1**

**TO**

**BIDDING DOCUMENT**

BIDDING DOCUMENT NO. : MEC/23R8/01/51/D2/T03/SU/6515  
SUBJECT OF BIDDING DOCUMENT : SUPPLY OF CNG RECIPROCATING COMPRESSORS

The terms and conditions of the Bidding Document stands modified to the extent indicated below and all other terms and conditions of the Bidding Document remains unaltered:

<b>Sn. No.</b>	<b>PART of Bidding Document</b>	<b>Section</b>	<b>Page No.</b>	<b>Clause No.</b>	<b>Clause Description</b>	<b>Additions / Deletions / Modifications</b>
1.	I	SECTION II - Annexure-II : BID EVALUATION CRITERIA & EVALUATION METHODOLOGY	11	(A) 1.1.2 (c)	Technical Criteria: For Qualification in Group B:	c) The bidder should have experience of having engineered, manufactured/packageged, tested and executed in a single order of at least 01 (One) no. of electric motor driven compressors of 600 SCMh or higher capacity, with minimum discharge pressure of 250 kg/cm <sup>2</sup> and having suction pressure of maximum 19 Kg/cm <sup>2</sup> handling hydrocarbon gas in previous 07(seven) years reckoned from the due date of submission of bid.  (OR)  The bidder should have experience of having engineered, manufactured / packageged, tested and executed in a single order of at least 01 (One) no. of Variable suction electric motor driven compressors of 600 SCMh average or higher capacity, with minimum discharge pressure of 250

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						kg/cm2 at varying suction pressure of 200 Kg/cm2 -14 Kg/cm2 handling hydrocarbon gas in previous 07 (seven) years reckoned from the due date of submission of bid.
2.	I	IFB	4	(J)	BID DUE DATE & TIME	Date : 19.09.2019 Time : Upto 15.00 hrs. (IST)
3.	I	IFB & BIDDING DATA SHEET (BDS) ANNEXURE-II	4 & 78	(K) & 26	DATE, & TIME OF UN-PRICED BID OPENING	Date : 19.09.2019 Time : 16.00 hrs. (IST)

Note: This Corrigendum shall form an integral part of the bidding document and shall be signed/stamped and submitted along with the bid.

(STAMP & SIGNATURE OF BIDDER)

**REPLIES TO PREBID QUERIES**

BIDDING DOCUMENT NO. : MEC/23R8/01/51/D2/T03/SU/6515

SUBJECT OF BIDDING DOCUMENT : Tender for SUPPLY OF CNG RECIPROCATING COMPRESSORS

SI No	Clause No	Page No.	Tender Specification	Deviation Taken	MECON/BGL Clarifications
1	1.1.2.C	11	<p>BEC "Technical Criteria for Group B" :</p> <p>- The bidder should have experience of having engineered, manufactured / packaged, tested and executed in a single order of at least 01 (One) no. of Variable suction electric motor driven compressors of 600 SCMH average or higher capacity, with minimum discharge pressure of 250 kg/cm2 at varying suction pressure of 200 Kg/cm2 (min.) -14 Kg/cm2 (Max.) handling hydrocarbon gas in previous 07 (seven) years reckoned from the due date of submission of bid"</p>	<p>We request customer to accept experience of online compressor package OR Variable suction electrical driven compressor. We request customer for following clause</p> <p>"The bidder should have experience of having engineered, manufactured / packaged, tested and executed in a single order of at least 01 (One) no. online electric motor driven compressors of 600 SCMH or higher capacity, with minimum discharge pressure of 250 kg/cm2(g) &amp; having suction pressure of maximum 19 kg/cm2(g) handling hydrocarbon gas in previous 07(seven) years reckoned from the due date of submission of bid. "</p> <p>OR</p> <p>"The bidder should have experience of having engineered, manufactured / packaged, tested and executed in a single order of at least 01 (One) no. of Variable suction electric motor driven compressors of 600 SCMH average or higher capacity, with minimum discharge pressure of 250 kg/cm2 at varying suction pressure of 200 Kg/cm2 (min.) -14 Kg/cm2 (Max.) handling hydrocarbon gas in previous 07 (seven) years reckoned from the due date of submission of bid"</p>	Refer Corrigendum#1

**REPLIES TO PREBID QUERIES**

BIDDING DOCUMENT NO. : MEC/23R8/01/51/D2/T03/SU/6515

SUBJECT OF BIDDING DOCUMENT : Tender for SUPPLY OF CNG RECIPROCATING COMPRESSORS

SI No	Clause No	Tender Specification	Deviation Taken	MECON/BGL Clarifications
1	Clause 2.1, Page 202 of 579	<p>b) Access by Road: CONTRACTOR, if necessary, shall build other temporary access roads to the actual site of construction for his own work at his own cost. The CONTRACTOR shall be required to permit the use of the roads so constructed by him for vehicles of any other parties who may be engaged on the project site. The CONTRACTOR shall also facilitate the construction of the permanent roads should the construction there of start while he is engaged on this work. He shall make allowance in his tender for any inconvenience he anticipates on such account.</p> <p>Non-availability of access roads, railway siding and railway wagons for the use of the CONTRACTOR shall in no case condone any delay in the execution of WORK nor be the cause for any claim for compensation against the EMPLOYER.</p>	Please note that access by road to the site has to be provided by the owner for our work as well as for other parties working at site. TGT shall not be held responsible for any such reasons where there is no access of road for material transportation to the site and thus causing any delay in the execution of work. Kindly exclude the given scope from bidder's responsibility.	Tender conditions prevail
2	Clause 2.3, Page 202 of 579	<p>Water Supply: Contractor will have to make his own arrangements for supply of water to his labor camps and for works. All pumping installations, pipe network and distribution system will have to be carried out by the Contractor at his own risk and cost.</p> <p>Alternatively the Employer at his discretion may endeavor to provide water to the Contractor at the Employer's source of supply provided the Contractor makes his own arrangement for the water meter which shall be in custody of the Employer and other pipe networks from source of supply and such distribution pipe network shall have prior approval of the Engineer-in-Charge so as not to interfere with the layout and progress of the other construction works. In such case, the rate for water shall be deducted from the running account bills.</p> <p>However, the Employer does not guarantee the supply of water and this does not relieve the Contractor of his responsibility in making his own arrangement and for the timely completion of the various works as stipulated.</p>	Please note that providing water facility to the execution team at site shall remain in the scope of owner/employer as water is a basic human need which we expect the owner to provide. TGT requests to exclude the given scope from bidder's responsibility.	Tender conditions prevail

3	Clause 2.4.1, Page 203 of 579	Subject to availability, EMPLOYER will supply power at 400/440 V at only one point at the nearest sub-station, from where the CONTRACTOR will make his own arrangement for temporary distribution. The point of supply will not be more than 500 m away from the CONTRACTOR'S premises. All the works will be done as per the applicable regulations and passed by the ENGINEER-IN-CHARGE. The temporary line will be removed forthwith after the completion of work or if there is any hindrance caused to the other works due to the alignment of these lines, the CONTRACTOR will re-route or remove the temporary lines at his own cost. The CONTRACTOR at his cost will also provide suitable electric meters, fuses, switches, etc. for purposes of payment to the EMPLOYER which should be in the custody and control of the EMPLOYER. The cost of power supply shall be payable to the EMPLOYER every month for Construction Works power which would be deducted from the running account bills. The EMPLOYER shall not, however, guarantee the supply of electricity nor have any liability in respect thereof. No claim for compensation for any failure or short supply of electricity will be admissible.	Please note that owner/employer shall have to provide the power supply for successful execution of work and bidder shall not be held responsible for any delay happening in execution work if power supply is not made available at site. TGT requests to exclude the given scope from bidder's responsibility.	Tender conditions prevail
4	Clause 119, Page 270 of 579	The CONTRACTOR will have to provide Fire Extinguishers, Fire Buckets and drums at worksite as recommended by ENGINEER-IN-CHARGE. They will have to ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinders/ inflammable liquid/ paints etc. as advised by ENGINEER-IN-CHARGE. Temporary combustible structures will not be built near or around the work-site.	Please note that providing fire extinguisher, fire buckets and drums at work site is the responsibility of the owner/employer and not bidder. Kindly exclude the scope from bidder's responsibility.	Tender conditions prevail
5	Clause No: 5.4 Page No: 516 of 579	Soft Starter: Siemens / ABB / Rockwell / Schneider	Please note that soft starter is used in online compressors. TGT will use contactors for booster compressors; kindly exclude the scope of using soft starters in booster compressors.	Tender conditions prevail
6	Clause 5.4, Page 517 of 579	Pressure Transmitter: Druck / Wika / Honeywell / ABB / Fisher / Rosmount / Yokogawa	TGT requests to include SETRA make PT in the list of preferred makes. TGT has supplied its booster compressors to various CGD's with SETRA make PT which have been giving trouble free performance till date.	Vendor approval as per tender procedure
7	Clause 5.4, Page 517 of 579	RTDs:- M/s General Instruments Ltd. Mumbai / M/s Nagman Sensors (Pvt.) Ltd./ M/s Pyro Electric, Goa / M/s Altop / M/s Wika	TGT requests to include <b>Exotherm</b> make RTD in approved vendor list. All the TGT boosters supplied to CGD companies are fitted with Exotherm make RTD which have been giving trouble free performance till date.	Vendor approval as per tender procedure
8	Clause 5.4, Page 518 of 579	Air exchanger / Radiator	TGT requests to include <b>United Heat transfer</b> make Heat Exchanger in approved vendor list. <b>United Heat transfer</b> has faster delivery.	Vendor approval as per tender procedure
9	Clause 5.4, Page 509 of 579	Air Compressor: IR / KPCL / ELGI / CP	TGT requests to include <b>Emtex</b> make air compressor in approved vendor list.  Emtex make Air Compressor gas faster delivery.	Vendor approval as per tender procedure

**CLARIFICATIONS FOR PREBID QUERIES**

BIDDING DOCUMENT NO. : MEC/23R8/01/51/D2/T03/SU/6515

SUBJECT OF BIDDING DOCUMENT : Tender for SUPPLY OF CNG RECIPROCATING COMPRESSORS

**Part A - 5 X 1200 SCMH GAS ENGINE DRIVEN CNG RECIPROCATING COMPRESSORS:**

SI No	Clause No	Tender Specification	Deviation Taken	MECON/BGL Clarifications
1	1.3	<p><b>Codes &amp; Standards</b></p> <p>The design, construction, manufacture, supply, testing and other general requirements of the compressor package equipment shall be strictly in accordance with the data sheets, applicable API codes, and shall comply fully with relevant National/ International standards, Indian Electricity Act, Indian Electricity Rules, regulations of Insurance Association of India and Factories Act while carrying out work as per this specification.</p> <p>Any modification suggested by the statutory bodies either during drawing approval or during inspection, if any, shall be carried out by the Bidder without any additional cost and delivery implications.</p> <p>The following codes and standards (versions/ revisions valid on the date of order) are referenced to &amp; made part of specification:</p> <p>ISO 13631-2002 : Petroleum and natural gas industries packaged reciprocating gas compressors  PNGRB regulations  OISD 179 -2016 : Safety requirements on compression, storage, handling, refuelling natural gas (CNG) for use in Automotive sector.  ASME B 31.3 -2016 – Process piping  NFPA-37-2015: Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines  NFPA-52: 2016- Vehicular natural gas fuel systems code  NFPA-496-2017: Standard for purged and pressurised enclosures for electrical equipment.  NFPA-68 -2013: Standard on explosion protection by deflagration venting.  NFPA-70 -2017: National electrical code</p>	<p>The compressor design is derived from API618/11P/equivalent industry standards. However, the design is enhanced to meet specific CNG application such as pressurized crankcase to avoid gas vent loss etc.</p>	<p>The Codes &amp; Standards mentioned in this clause is for <b>overall compressor package</b> and not specific to compressor only.</p> <p>Bidder to adhere to any Indian / International standards as mentioned in the clause.</p>

		NFPA 12-2015: Standard on Carbon dioxide Extinguishing system ASME Sec IX: Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators Gas Cylinder rules-2016 ANSI, ASTM, NEC, NEMA, Indian Electricity Rules, Indian Explosives Act.		
2	1.7  4.13.8  4.13.11	xxxiii. All gas piping downstream of coalescent filter in compressor discharge shall be of SS 316 only.  Pressurized lubricating oil lines downstream of the filter (with the exception of castin-frame lines or passages) shall be made of austenitic stainless steel.  All piping after coalescent filter at compressor discharge shall be of SS 316.	After oil filter inbuilt oil galleries are provided, & manufacturer's standard Brass NRV provided at forced lubrication point.	NOTED
3	1.9.3	All exposed rotating parts shall be provided with adequate guards of non-sparking type.	Block will be as per manufacturer's std. design	The clause is talking about any exposed rotating parts in the compressor package to be provided with guards of non-sparking type for safety reasons.  Tender Conditions prevail
4	1.9.4	Drive belt, if used shall be of fire retardant and anti-static type.	Not Applicable	NOTED
5	4.1.1	iii. Code and specification as indicated in clause no.1.2 iv. Compressor and its auxiliary's design shall be in conformity with ISO 13631:2002	Block will be as per manufacturer's std. design	Refer reply on SI. No. 1 above
6	4.2.3	Compressor maximum vibrations at cylinders and at frame shall not exceed 10 mm/sec and 5 mm/s respectively at unfiltered peak velocity. The Bidder shall provide structural support for all the parts within the package so that these levels can be achieved.	Vibration levels shall be maintained as per industry standards.	Tender Conditions prevail. Please provide structural support for all the parts within the package so that these levels can be achieved.
7	4.4.2	Packing vent piping inside of the distance piece shall be designed for the maximum allowable working pressure of the cylinder.	Not Applicable	NOTED
8	4.5.3	Heating shall be provided for reservoir if applicable for the bidder's design of compressor when the minimum ambient temperature is less than the Bidder's required minimum start up temperature.	Not applicable	NOTED
9	4.5.4	Heater besides meeting the area classification requirements specified in the Tender shall be star connected if designed for operation on 3-phase (4 wire), 440V, 50 Hz supply.	Not applicable	NOTED
10	4.6	<b>Distance Pieces</b>  4.6.1 Distance piece as per ISO 13631-2002 with cylinder side compartment vented to safe location is specified. Distance piece as per manufacturer's standard design which is used in the earlier supplied successfully running packages is also accepted.		Tender conditions prevail

		4.6.2 Distance pieces shall be provided with gasketed, solid covers and shall be suitable for a minimum differential compartment pressure of 1.75 kg/cm <sup>2</sup> g.	Block will be as per manufacturer's std. design	
11	4.7.1	<p>Divider block type lubrication system/Single plunger per point force feed mechanical lubricator shall be provided for lubrication to compressor cylinders. Block distribution lubrication systems shall be complete with no-flow shutdown, rupture relief discs, check valves, filter, common sight glass and carbon steel or austenitic stainless steel tubing.</p> <p>For pump-to-point lubrication systems, a sight indicator for each point, check valves and carbon steel or austenitic stainless steel tubing shall be furnished.</p>	<p>Divider block type with Common indicator will be provided.</p> <p>Common indicator is provided &amp; Brass NRV provided.</p>	Tender conditions prevail
12	4.7.3	For pump-to-point lubrication systems, Lubricators shall have a sight flow indicator for each lubricator point and a stainless steel double ball check valve shall be provided at each lubrication point.	Common indicator is provided & Brass NRV provided.	Tender conditions prevail
13	4.7.4	Digital no flow timer shall be provided to stop the compressor in case of loss of cylinder lubrication.	<p>Common Digital No Flow Switch (time based) will be provided.</p> <p>- When there is no – pulse (from cylinder lubrication - divider block) for certain time interval, the switch toggles &amp; the compressor is tripped on lubrication fault.</p>	NOTED
14	4.8.2	<p><b>Inter / After Gas Coolers</b></p> <p>Air-cooled inter-stage and final stage discharge coolers shall be provided which shall limit the gas temperature after the after cooler to 50°C. For calculating the surface area of the air cooler, the ambient air temperature of 44°C and 80% RH shall be considered. Cooler design shall be on the basis of 20% excess capacity than required corresponding to suction pr. of 19 kg/cm<sup>2</sup>(g). Gas sections of coolers shall be designed as per API-661 requirements. Vibration switch shall be provided on the heat exchanger to trip the compressor on high vibration limit. Bidder shall indicate vibration level in the offer. For cooling of the Heat Exchangers a cooling fan to be provided inside the enclosure(s). Cooling system shall be preferably installed on the same skid as the compressor due to space constraints. Bidder shall submit cooler sizing calculation for review.</p>	<p>The approach above ambient would be <b>10°C</b>. (max. discharge temp. <b>42°C + 10°C = 52°C</b>).</p> <p>- The required inputs would be given in the Heat Exchanger datasheet.</p>	Tender Conditions prevail
15	4.13.5	The instrument air tubing material shall be minimum SS304 inside the compressor from main distribution header to instruments.	PU tubing shall be used for instrument air tubing	Tender Conditions prevail
16	4.13.6	All high-pressure gas piping shall be of SS 316 material with double ferrule fittings and 2/3 way valves. Material of tube shall be as per ASTM A269.	As per manufacturer's standard design parameters.	Tender Conditions prevail.
17	6.2.1	<p><b>Mechanical running test (MRT)</b></p> <p>The MRT for the each compressor shall be carried out by tenderer</p>		Tender Conditions prevail.

		<p>with job or shop driver including complete job driving system i.e., job driven V-belt, job pulleys etc., for 4 hours continuously at shop of compressor manufacturer. The compressor need not be pressure loaded for MRT test. During this test following shall be recorded at agreed intervals.</p> <p>a. Vibration levels measured on cylinders and frame. b. Bearing temperature. c. Oil cooler inlet and outlet temp. d. Sound level</p> <p>Subsequent to satisfactory run, the compressor shall be examined as per standard procedure &amp; following shall be examined as minimum:</p> <p>Internal Inspection certificate for strip test after no-load run of compressor is to be submitted for review of BGL/ Mecon.</p> <p>Strip test is limited to open Crank Case cover, X-Hd guide &amp; Dist.pc. Cover and opening of bore &amp; other parts, piston, one valve per cylinder. Visual examination of position rod.</p> <p>If any of part found damaged, all similar components shall be stripped for inspection. The MRT test shall be repeated after replacement of such parts.</p> <p>All the interlocking and performance of the instrumentation system will be verified during the MRT.</p>	MRT will be carried out as per manufacturer's standard procedures.	
18	1.7 (vi)	Separate flameproof junction boxes for different type of signals like analog, digital signals, alarm, shutdowns, and thermocouples, RTDs etc. for interfacing to FLP local panel. Same is not applicable for direct run cable up to PLC panel.	LCP (With PLC) is mounted on package itself hence separate JB's are not required LCP (With PLC) is mounted on package itself & also separate gauge box will be used for intrinsically safe signals.	Tender Conditions prevail
19	1.7 (xiii)	Priority Panel at Package Discharge as per Priority fill system. All unused priority outlets to be plugged with dummy plugs after isolation valve.	Standard Priority Panel as specified in Tender for the application will be supplied with arrangements as per previous supplies	Tender Conditions prevail
20	1.7 (viii)	Common structural steel skid for the compressor- gas engine and for all auxiliary systems	All auxiliaries like CO2, Air compressor, etc will be supplied loose & to mounted apart from package.	NOTED
21	1.7 (xxi)	Coupling/V-belt/pulleys	Direct coupled	NOTED
22	1.7 (xxxi)	Bidder shall furnish a basket strainer fitted with adequate size mesh at the gas inlet. The free area of the strainer element shall be at least four (4) times the internal area of the connecting pipe lines. Flow area in any portion of Basket strainer assembly shall not be less than the pipe cross sectional area. The strainer element shall be with the mesh of 5 micron. Pressure drop in clean condition shall	We shall provide Y strainer considering ease of maintenance.	Tender Conditions prevail.

		not be more than 4.0 MWC. Wire mesh of the strainers shall be suitably reinforced, to avoid buckling under operation. Strainer shall have screwed blow off connection fitted with a removable plug. The strainer will have a permanent stainless steel tag fixed on the strainer body indicating the strainer tag number and service and other salient data. The size of the strainer and the flow direction will be indicated on the strainer body casting. Thickness of the strainer element should be designed to withstand the pressure developed within the strainer due to 100% clogged condition exerting shut-off pressure on the element.		
23	1.7 (xliv)	Vendor has to provide dedicated mobile phone & number for each site/compressor. Client shall not pay any extra charges towards phone & monthly bills.	Mobile phones to be excluded from bidder's scope.	ACCEPTED. Mobile phone and SIM are deleted from scope.
24	1.7 (xlili)	The provision for overhead mounting of cascade {4500 /3000 water liter capacity with approximate weight of 9 tons} should be there & same should be of enough strength having working space and with ladder arrangement. However Cascade supply and its Mounting on the structure shall be in the scope of purchaser. Structure Stability compliance Certificate of the unit from the manufacturer where cascade will be mounted to be submitted during detail engineering. Cascade drawing will be provided during detailed engineering. However if any modification is required for the structural frame of the compressor on which cascade is to be mounted is to be carried out at site by the bidder during installation of the cascade by the owner.	For engine driven machines as silencer in mounted on top, mounting cascade next to silencer in not recommended considering safety hazards. Cascade to be mounted separately on ground by user/purchaser.	Tender Conditions prevail.
25	2.1.2	Air compressor of capacity approx 7.5 kW preferably of IR/KPCL/Elgi/CP make of approx 16 kg/cm2(g) discharge pressure with PRV, and 1000 water litre capacity air receiver shall be supplied for each CNG compressor package for gas engine starting purpose. Air dryer suitable for automatic operation shall also be supplied along with all accessories. The air compressor motor& air dryer shall be flameproof and will be kept in CNG area. Piping, electrical and instrumentation cabling shall be in bidder's scope. Tapping in the 1000WL air receiver vessel shall be provided with NRV, PRV (set at 7 kg/cm2 (g)) and isolation valve for CNG dispenser instrumentation line. Air receiver shall be provided with SRV (safety relief valve), pressure gauge and drains. Manual drains and automatic moisture traps/moisture separator cum regulator shall be provided in the system.	Air Compressor suitable for non-flame proof application coupled to 5 hp electric motor & discharge pressure 10 barg shall be provided.	Tender Conditions prevail
26	2.1.4	Cooling water is not available as utility and the package shall be provided with self-sufficient cooling water system for Compressor, as required, with makeup tank. However cooling water for makeup tank is available	Compressor with Air cooled heat exchanger will be provided	NOTED
27	2.2.2 & 2.2.3	As and where specified on the data sheets all vents (i.e. Relief valve, distance piece and packing) shall be manifolded and terminated at skid edge outside the enclosure and vented to safe height of 3.0 m at package roof.	Distance piece will be as per manufacturer's standard. Venting is not applicable due to pressurised crankcase.	NOTED

		All drains from different process equipment, distance piece and packing shall be manifolded and terminated at single point for customer interface duly flanged with isolation valve		
28	4.8.2	<p><b>Inter / After Gas Coolers</b></p> <p>Air-cooled inter-stage and final stage discharge coolers shall be provided which shall limit the gas temperature after the after cooler to 50°C. For calculating the surface area of the air cooler, the ambient air temperature of 44°C and 80% RH shall be considered. Cooler design shall be on the basis of 20% excess capacity than required corresponding to suction pr. of 19 kg/cm2(g). Gas sections of coolers shall be designed as per API-661 requirements. Vibration switch shall be provided on the heat exchanger to trip the compressor on high vibration limit. Bidder shall indicate vibration level in the offer. For cooling of the Heat Exchangers a cooling fan to be provided inside the enclosure(s). Cooling system shall be preferably installed on the same skid as the compressor due to space constraints. Bidder shall submit cooler sizing calculation for review.</p>	<p>'- The approach above ambient would be 10°C.</p> <p>-Cooler design shall be on the basis of 10% excess</p> <p>-Design shall be as per ASME.</p>	Tender Conditions prevail
29	4.9.3	All vessels including pulsation dampers shall be fully (100 %) radiographed as per ASME VIII UW (a) or equivalent.	All vessels will be fully (100%) radio-graphed as per ASME VIII, however U stamping not considered.	Tender Conditions prevail
30	4.9.6	<p><b>Gas recovery system:</b></p> <p>v. Suction damper and gas recovery vessel shall preferably not be combined and one pressure regulator with isolation valve shall be provided to connect gas recovery vessel with compressor suction.</p> <p>vi. If suction damper and gas recovery vessel are combined, pressure regulator after gas recovery vessel will not be allowed due to high pressure drop during compressor operation.</p>	<p>Gas recovery system &amp; vessels are as per proprietary design of manufacturer.</p> <p>As suction damper and gas recovery vessel are combined, pressure regulator after gas recovery vessel not considered</p>	Tender Conditions prevail
31	4.9.9	Coalescent super fine filters (preferably two stage) with CE mark/ Third party certification for removal of liquid (e.g. water & oil) and solid particles down to 0.1 microns out of compressed natural gas shall be provided. Residual Oil Contents shall be less than 1 PPM. Automatic drains with On-off valve connected to Gas recovery vessel shall be provided. The filter should be sized to flow min. 200% of the flow at suction pressure of 19 kg/cm2g. However mechanical design shall be based on safety set pressure.	Timer base automatic oil drain as per standard design will provided.	Tender Conditions prevail
32	4.10	Pulsation, Vibration Control and Analog Study	Not feasible to be provided due to proprietary design details	As per design standard
33	4.11	Gas Engine	We shall considered Cummins GTA855 gas engine.	Tender Conditions prevail
34	4.12.1	The maximum allowed temperature within the enclosure shall be 5°C above ambient temperature. Adequate ventilation fans/suitable arrangement shall be provided to meet the above and also to account for heat dissipation of the coolers.	Approach would be Temperature inside canopy = Ambient + 8 Deg	Tender Conditions prevail

35	4.12.2	The compressor package shall consist of single enclosure for Compressor and gas engine. The equipment shall be mounted on one common skid. The Enclosure to restrict maximum noise level to 70 dB (A) at 1 meter from the enclosure.	The Enclosure will be designed considering to restrict maximum noise level to 80 dB (A) at 1 meter from the enclosure in free field condition.	Tender Conditions prevail
36	4.12.5	All the pressure, temperature, lube oil pressure, coolant temperature shall be visible from outside of enclosures though gauge panel.	All the indicators for pressure, temperature of gas shall be visible from outside of enclosures. For rest of the parameters same can be viewed from PLC/locally.	Tender Conditions prevail
37	4.13	Piping	Gas piping/ tubing at 3rd stage discharge will only be in SS-316, with SS fittings,  Rest all piping /tubing will be Combination of Flanged & screwed connections with CS material (pipes, Fittings & Flanges) as per application requirement & standard design.  This is as per manufacturing standard design.	Tender Conditions prevail
38	4.13.5	The instrument air tubing material shall be minimum SS304 inside the compressor from main distribution header to instruments.	We shall provide SS304.	NOTED
39	4.13.7	Bidder shall furnish a start-up conical strainer fitted with adequate size mesh.	We shall provide Y stainer considering ease of maintenance.	Tender Conditions prevail
40	4.13.8	Pressurized lubricating oil lines downstream of the filter (with the exception of castin-frame lines or passages) shall be made of austenitic stainless steel.	After oil filter inbuilt oil galleries are provided, & manufacturer's standard Brass NRV provided at forced lubrication point.	NOTED
41	4.13.9	External drain & vent piping shall be Carbon Steel and not less than 1" nominal size. However, all the internal drains/ vent connections shall be SS 316 tube as per ASTM A269.	Package oil drain will be of 1/2" as per manufacturer standard.	NOTED
42	4.13.15	4.13.15 Design of piping systems shall achieve the following: xi. Following certificates have to be submitted for piping fabricated at Site & shop: a. Electrode qualification test procedure b. Proposed Welding procedure specification with impact test c. Electrode qualification test results d. Procedure qualification test results and final WPS e. Welder's qualification test	Test Certificates not considered as welding in piping not involved.	NOTED
43	5.11.14	<b>Following points to be noted regarding Mass Flow meter-Coriolis type required at Suction, Discharge and Gas inlet to Engine (only for Gas engine driven compressor).</b> <b>I. Vendor shall submit the following test certificates and test reports for purchaser's review:-</b> i. Material test certificate with detailed chemical analysis from foundry (MIL Certificate). ii. Certificate of radiography / x-ray for any welded joint.	There is no inclusion of welding for MFM hence the submission of the test certificates not considered	Tender Conditions prevail
44	5.11.15	b. Equipments / instruments / systems located in electrically hazardous areas shall be certified for use by statutory authorities for their use in the area of their installation. In general, the following		Tender Conditions prevail

		verification shall be provided by the vendor.:  Bidder shall provide certificates (from BASEEFA FM, UL, PTB, LCIE etc.) from country of origin for all intrinsically safe/flameproof protected by other methods equipment/instrument/systems, which are manufactured outside India. If required, bidder shall provide necessary certification / approvals / authentication, for all such intrinsically safe /flame proof equipment / instrument / systems, by the Indian authority- Chief Controller of Explosive (CCOE) / PESO, Nagpur, India.	CCOE or its equivalent certificate (FM, CSA, ATEX, UL, CMRI) whichever applicable & available will be provided.	
45	6.2	Mechanical Run Test (MRT)	MRT will be as per the manufacturer's standards	Tender Conditions prevail
46	6.4	<b>Pressure and temperature of gas shall be considered at purchaser's boundary limit (or before filter unit of package if provided) and as indicated in the Instrumentation schedule; if provision not available then supplier shall install necessary pressure and temp measuring devices.</b>	Pressure and temperature at compressor inlet flange will be considered for FAT.	NOTED
47	8.2	PAINTING (PRIMER & FINISH COAT)	Paint shall be applied as per bidder's standard paint specification	Tender Conditions prevail
48	22.1	Compressor Instrumentation	Following not considered : 1. Frame Oil Sump/Reservoir Level : Switch not considered. 2. Main L/O Pump Disch. Pr (supply header): Indication, Pre-Alarm and Trip: Not considered 11. Lubricator Oil no Flow: Level Switch and LL Alarm considered. 23. Coolant main pump disch. Pr: Not Applicable 28. Coolant cooler outlet Temp: NOt Applicable 29. Coolant reservoir Level: Not Applicable 47.Vibration Measurement on comp. heat exchanger: Vibration Switch considered.	Tender Conditions prevail
49	22.2	Engine Instrumentation	2. ENGINE OIL PR. : NA ENGINE OILTEMP. : NA 6. OIL COOLER OI : NA 16. COOLANT MAIN PUMP DISCH. PR.: NA 17. COOLANT SUPPLY HEADER PR.: NA 19. COOLANT COOLER OUTLET TEMP: NA 24.: INLET AIR FILTER DIFFERENTIAL PRESSURE: NA	Tender Conditions prevail
50	23	QUALITY ASSURANCE PLAN	Inspection & Testing will be as per Approved QAP.	NOTED
51	-	HYDROTEST OF - PRESS.VESSELS	Inspection by owner/TPI not considered	As per approved QAP

52	-	Heat Exchangers (at sub-vendor works): - WPS / PQR – Welder Qualification	'-Welding not applicable	As per approved QAP
53	24	Preferred makes  SUCTION & DISCHARGE FILTER:	Kindly approve below makes :  SUCTION FILTER:  DISCHARGE FILTER: Kindly approve ACIL standard discharge filter with Paker filter element.	Approval of vendors shall be as per tender

**Part A - 5 X 600 SCMH ELECTRIC MOTOR DRIVEN – VIP - CNG RECIPROCATING COMPRESSORS:**

SI No	Clause No	Tender Specification	Deviation Taken	MECON/BGL Clarifications
1	1.2	<p><b>Codes &amp; Standards</b></p> <p>The design, construction, manufacture, supply, testing and other general requirements of the compressor package equipment shall be strictly in accordance with the data sheets, applicable API codes, and shall comply fully with relevant National/ International standards, Indian Electricity Act, Indian Electricity Rules, regulations of Insurance Association of India and Factories Act while carrying out work as per this specification.</p> <p>Any modification suggested by the statutory bodies either during drawing approval or during inspection, if any, shall be carried out by the Bidder without any additional cost and delivery implications.</p> <p>The following codes and standards (versions/ revisions valid on the date of order) are referenced to &amp; made part of specification:</p> <p>API-11P/ISO 13631-2002 : Petroleum and natural gas industries packaged reciprocating gas compressors PNGRB regulations            OISD 179 -2016 : Safety requirements on compression, storage, handling, refuelling natural gas (CNG) for use in Automotive sector.            ASME B 31.3 -2016 – Process piping            NFPA-37-2015: Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines            NFPA-52: 2016- Vehicular natural gas fuel systems code            NFPA-496-2017: Standard for purged and pressurised enclosures for electrical equipment.            NFPA-68 -2013: Standard on explosion protection by deflagration venting.            NFPA-70 -2017: National electrical code            NFPA 12-2015: Standard on Carbon dioxide Extinguishing system            ASME Sec IX: Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators            Gas Cylinder rules-2016            ANSI, ASTM, NEC, NEMA, Indian Electricity Rules, Indian Explosives Act.</p>	<p>The compressor design is derived from API618/11P/equivalent industry standards. However, the design is enhanced to meet specific CNG application such as pressurized crankcase to avoid gas vent loss etc.</p>	<p>The Codes &amp; Standards mentioned in this clause is for <b>overall compressor package</b> and not specific to compressor only.</p> <p>Bidder to adhere to any Indian / International standards as mentioned in the clause.</p>
2	1.5	<p>xiii. All gas piping downstream of coalescent filter in compressor discharge shall be of SS 316 only.</p> <p>Pressurized lubricating oil lines downstream of the filter (with the</p>	<p>After oil filter inbuilt oil galleries are provided, &amp; standard Brass NRV provided at forced lubrication point.</p>	<p>NOTED</p>

	4.13.8	exception of castin-frame lines or passages) shall be made of austenitic stainless steel.		
	4.13.11	All piping after coalescent filter at compressor discharge shall be of SS 316.		
3	1.7.4	Drive belt if used shall be of fire retardant and anti-static type.	Not Applicable	NOTED
4	4.1.1	iii. Code and specification as indicated in clause no.1.2 iv. Compressor and its auxiliary's design shall be in conformity with ISO 13631:2002 / API 11P	The compressor design is derived from API618/11P/equivalent industry standards. However, the design is enhanced to meet specific CNG application such as pressurized crankcase to avoid gas vent loss etc.	Refer reply on SI. No. 1 above
5	4.2.3	Compressor maximum vibrations at cylinders and at frame shall not exceed 10 mm/sec and 5 mm/s respectively at unfiltered peak velocity. The Bidder shall provide structural support within the package so that these levels can be achieved.	As per industry standards and manufacturer's design parameters	Tender Conditions prevail. Please provide structural support for all the parts within the package so that these levels can be achieved.
6	4.4.1	All oil wiper, intermediate gas cylinder pressure packing shall be segmental rings with stainless steel garter springs. The pressure packing case shall be provided with a common vent and drain below the piston rod tube to the outside of the Package enclosure. However if pressurised crankcase type design is used, packing vent and drain shall not be provided.	Not applicable since pressurized crank case is used.	NOTED
7	4.4.2	Packing vent piping inside of the distance piece shall be designed for the maximum allowable working pressure of the cylinder.	Not Applicable	NOTED
8	4.5.3	Heating shall be provided for reservoir if applicable for the bidder's design of compressor when the minimum ambient temperature is less than the Bidder's required minimum start up temperature.	Not applicable	NOTED
9	4.5.4	Heater besides meeting the area classification requirements specified in the Tender shall be star connected if designed for operation on 3-phase (4 wire), 440V, 50 Hz supply.	Not applicable	NOTED
10	4.6	<b>Distance Pieces</b>  4.6.1 Distance piece as per ISO 13631-2002 with cylinder side compartment vented to safe location is specified. Distance piece as per manufacturer's standard design which is used in the earlier supplied successfully running packages is also accepted.  4.6.2 Distance pieces shall be provided with casketed, solid covers and shall be suitable for a minimum differential compartment pressure of 1.75 kg/cm <sup>2</sup> g.	Distance piece will be as per manufacturer's standard.	Tender conditions prevail
11	4.7.1	Divider block type lubrication system / Single plunger per point force feed mechanical lubricator shall be provided for lubrication to compressor cylinders. Block-distribution lubrication systems shall be complete with no-flow shutdown, rupture relief discs, check valves, filter, common sight glass and carbon steel or austenitic stainless steel tubing.	Divider block type with Common indicator will be provided.	Tender conditions prevail

		For pump-to-point lubrication systems, a sight indicator for each point, check valves and carbon steel or austenitic stainless steel tubing shall be furnished.	Common indicator is provided & Brass NRV provided.	
12	4.7.3	For pump-to-point lubrication systems, Lubricators shall have a sight flow indicator for each lubricator point and a stainless steel double ball check valve shall be provided at each lubrication point.	Common indicator is provided & Brass NRV provided.	Tender conditions prevail
13	4.7.4	Digital no flow timer shall be provided to stop the compressor in case of loss of cylinder lubrication.	Standard, Common Digital No Flow Switch (time based) will be provided. - When there is no – pulse (from cylinder lubrication - divider block) for certain time interval, the switch toggles & the compressor is tripped on lubrication fault.	NOTED
14	4.8.2	<b>Inter / After Gas Coolers</b>  Air-cooled inter-stage and final stage discharge coolers shall be provided which shall limit the gas temperature after the after cooler to 500C. For calculating the surface area of the air cooler, the ambient air temperature of 440C and 80% RH shall be considered. Cooler design shall be on the basis of 20% excess capacity than required corresponding to suction pr. of 19 kg/cm2(g). Gas sections of coolers shall be designed as per API-661 requirements. Vibration switch shall be provided on the heat exchanger to trip the compressor on high vibration limit. Bidder shall indicate vibration level in the offer. For cooling of the Heat Exchangers a cooling fan to be provided inside the enclosure(s). Cooling system shall be preferably installed on the same skid as the compressor due to space constraints. Bidder shall submit cooler sizing calculation for review.	The approach above ambient would be <b>10°C</b> . (max. discharge temp. <b>42°C + 10°C = 52°C</b> ). - The required inputs would be given in the Heat Exchanger datasheet.	Tender Conditions prevail
15	4.13.5	The instrument air tubing material shall be minimum SS304 inside the compressor from main distribution header to instruments.	Instrument air tubing material shall be PU type.	Tender Conditions prevail
16	4.13.6	All high-pressure gas piping shall be of SS 316 material with double ferrule fittings and 2/3 way valves. Material of tube shall be as per ASTM A269.	As per manufacturer's standards.	Tender Conditions prevail
17	10.2.1	<b>Mechanical running test (MRT)</b>  The MRT for the each compressors shall be carried out in presence of PURCHASER/CONSULTANT with job or shop driver including complete job driving system i.e., job driven V-belt, job pulleys etc., for 4 hours continuously at shop of compressor manufacturer. The compressor need not be pressure loaded for MRT test. During this test following shall be recorded at agreed intervals.  a. Vibration levels measured on cylinders and frame. b. Bearing temperature. c. Oil cooler inlet and outlet temp. d. Sound level	MRT will be carried out as per manufacturer's std.	Tender Conditions prevail

		<p>Subsequent to satisfactory run, the compressor shall be examined as per standard procedure &amp; following shall be examined as minimum:</p> <p>Internal Inspection certificate for strip test after no-load run of compressor is to be submitted for review of BGL/ Mecon.</p> <p>Strip test is limited to open Crank Case cover, X-Hd guide &amp; Dist.pc. Cover and opening of bore &amp; other parts, piston, one valve per cylinder. Visual examination of position rod.</p> <p>If any of part found damaged, all similar components shall be stripped for inspection. The MRT test shall be repeated after replacement of such parts.</p>		
18	1.1.1	<p>O&amp;M service (one year during warranty period and two years post warranty period) of the 600 SCMh capacity at suction pressure 16 Kg/cm<sup>2</sup>(g) "ELECTRIC MOTOR DRIVEN VARIABLE SUCTION CNG RECIPROCATING GAS COMPRESSOR PACKAGES AS INDICATED IN THE MR TABLE " for inlet line pressure range of 14 kg/cm<sup>2</sup>(g) to 250 kg/cm<sup>2</sup>(g) (performance range 16 to 19 kg/cm<sup>2</sup> (g)) with discharge pr. 250 kg/cm<sup>2</sup> (g )" as required for dispensing CNG to vehicles at various locations in Hyderabad, Vijayawada &amp; Kakinada Geographical Area.</p>	Compressor shall run on variable pressure from 200 barg to 14 barg.	Tender Conditions prevail
19	1.5 (v)	<p>Separate flameproof junction boxes for different type of signals like analog, digital signals, alarm, shutdowns, and thermocouples, RTDs etc. for interfacing to FLP local panel. Same is not applicable for direct run cable upto PLC panel.</p>	LCP (With PLC) is mounted on package itself hence separate JB's are not required. LCP (With PLC) is mounted on package itself & also separate gauge box will be used for intrinsically safe signals.	Tender Conditions prevail
20	1.5 (vii)	<p>Common structural steel skid for the compressor- gas engine and for all auxiliary systems</p>	All auxiliaries like CO <sub>2</sub> , Air compressor, etc. will be supplied loose & to mounted apart from package.	NOTED
21	1.5 (xxxix)	<p>Bidder shall furnish a basket strainer fitted with adequate size mesh at the gas inlet. The free area of the strainer element shall be at least four (4) times the internal area of the connecting pipe lines. Flow area in any portion of Basket strainer assembly shall not be less than the pipe cross sectional area. The strainer element shall be with the mesh of 5 micron. Pressure drop in clean condition shall not be more than 4.0 MWC. Wire mesh of the strainers shall be suitably reinforced, to avoid buckling under operation. Strainer shall have screwed blow off connection fitted with a removable plug. The strainer will have a permanent stainless steel tag fixed on the strainer body indicating the strainer tag number and service and other salient data. The size of the strainer and the flow direction will be indicated on the strainer body casting. Thickness of the strainer element should be designed to withstand the pressure developed within the strainer due to 100% clogged condition exerting shut-off pressure on the element.</p>	We shall provide Y strainer considering ease of maintenance.	Tender Conditions prevail

22	1.5 (li)	Vendor has to provide dedicated mobile phone & number for each site/compressor. BGL shall not pay any extra charges towards phone & monthly bills.	Mobile phones to be excluded from bidder's scope.	ACCEPTED. Mobile phone and SIM are deleted from scope.
23	1.5 (xxvii)	The provision for overhead mounting of cascade {2000/3000 water liter capacity with approximate weight of 7 tons} should be there & same should be of enough strength having working space and with ladder arrangement. However Cascade supply and its Mounting on the structure shall be in the scope of purchaser. Structure Stability compliance Certificate of the unit from the manufacturer where cascade will be mounted to be submitted during detail engineering. Cascade drawing will be provided during detailed engineering. However if any modification is required for the structural frame of the compressor on which cascade is to be mounted is to be carried out at site by the bidder during installation of the cascade by the owner.	Cascade mounting arrangement is not feasible to be provided since additional BDV is mounted on the canopy top. Cascade to be mounted on ground by Purchaser.	Tender Conditions prevail
24	2.1.2	Air compressor with discharge pressure of 7 kg/cm <sup>2</sup> (g) suitable for 1.5 KW electric motor rating or higher with dryer shall be supplied by bidder. Compressor to be supplied should be preferably of IR / KPCL / ELGI / CP make and air receiver of 500 water liter capacities shall be provided. Air dryer suitable for automatic operation shall also be supplied along with all accessories. The air compressor motor shall be flameproof and will be kept in CNG area. Piping, electrical & instrumentation cabling shall be in bidder's scope. Necessary FR unit shall be provided as per requirement. Manual drains and automatic moisture traps / moisture separator cum regulator shall be provided in the system. Air receiver shall be provided with SRV, pressure gauge and drains with isolation valves. Air dryer shall be with bypass arrangement.	Air Compressor suitable for non-flame proof application coupled to 3 hp electric motor & discharge pressure 10 barg shall be provided.	Tender Conditions prevail
25	2.1.4	Cooling water is not available as utility and the package shall be provided with self-sufficient cooling water system for Compressor, as required, with makeup tank. However cooling water for makeup tank is available	Compressor with Air cooled heat exchanger will be provided	NOTED
26	2.2.2 & 2.2.3	As and where specified on the data sheets all vents (i.e. Relief valve, distance piece and packing) shall be manifolded and terminated at skid edge outside the enclosure and vented to safe height of 3.0 m at package roof.  All drains from different process equipment, distance piece and packing shall be manifolded and terminated at single point for customer interface duly flanged with isolation valve	Distance piece will be as per manufacturer's standard. Venting is not applicable due to pressurised crankcase.	NOTED
27	4.1.4	The gas pressure in the inlet pipe at the battery limit varies from 14 kg/cm <sup>2</sup> (g) to 250 kg/cm <sup>2</sup> (g) when the compressor is used as booster compressor and pressure vary from 14 to 49 kg/cm <sup>2</sup> (g) when the compressor is used as on-line compressor. Bidder if required to provide PRV with slam shut off valve of sufficient rating at gas inlet of compressor to protect the downstream distribution	For VIP operation PRV only shall be shall be provided. PRV+SSV shall be provided in online mode only. Duplex suction filter shall be considered for online application only.	Tender Conditions prevail

		<p>pipng and fixtures from experiencing excess unsafe pressures in the event that outlet pressure of the high flow PRV rises above an acceptable level. Outlet pressure of PRV depends upon the design of compressor block and it may have multiple springs to regulate the pressure. Duplex filter shall be installed before PRV. However, sizing of the compressor for 600 SCMh capacity at discharge pressure of 250 kg/cm<sup>2</sup> (g) shall be carried out at 16 kg/cm<sup>2</sup>(g) suction pressure .</p> <p>Suction pr. transmitters shall be provided to protect the compressor from very high and low pressure.</p>		
28	4.8.2	<p><b>Inter / After Gas Coolers</b></p> <p>Air-cooled inter-stage and final stage discharge coolers shall be provided which shall limit the gas temperature after the after cooler to 50°C. For calculating the surface area of the air cooler, the ambient air temperature of 44°C and 80% RH shall be considered. Cooler design shall be on the basis of 20% excess capacity than required corresponding to suction pr. of 19 kg/cm<sup>2</sup>(g). Gas sections of coolers shall be designed as per API-661 requirements. Vibration switch shall be provided on the heat exchanger to trip the compressor on high vibration limit. Bidder shall indicate vibration level in the offer. For cooling of the Heat Exchangers a cooling fan to be provided inside the enclosure(s). Cooling system shall be preferably installed on the same skid as the compressor due to space constraints. Bidder shall submit cooler sizing calculation for review.</p>	<p>'- The approach above ambient would be 10°C.          -Cooler design shall be on the basis of 10% excess          -Design shall be as per ASME.</p>	Tender Conditions prevail
29	4.9.3	All vessels including pulsation dampers shall be fully (100 %) radiographed as per ASME VIII UW (a) or equivalent.	All vessels will be fully (100%) radio-graphed as per ASME VIII, however U stamping not considered.	Tender Conditions prevail
30	4.9.6	<p><b>Gas recovery system:</b></p> <p>v. Suction damper and gas recovery vessel shall preferably not be combined and one pressure regulator with isolation valve shall be provided to connect gas recovery vessel with compressor suction.</p> <p>vi. If suction damper and gas recovery vessel are combined, pressure regulator after gas recovery vessel will not be allowed due to high pressure drop during compressor operation.</p>	<p>Gas recovery system &amp; vessels are as per proprietary design of manufacturer.</p> <p>As suction damper and gas recovery vessel are combined, pressure regulator after gas recovery vessel not considered</p>	Tender Conditions prevail
31	4.9.9	Coalescent super fine filters (preferably two stage) with CE mark/ Third party certification for removal of liquid (e.g. water & oil) and solid particles down to 0.1 microns out of compressed natural gas shall be provided. Residual Oil Contents shall be less than 1 PPM. Automatic drains with On-off valve connected to Gas recovery vessel shall be provided. The filter should be sized to flow min. 200% of the flow at suction pressure of 19 kg/cm <sup>2</sup> g. However mechanical design shall be based on safety set pressure.	Timer base automatic oil drain as per standard design will provided.	Tender Conditions prevail
32	4.10	Pulsation, Vibration Control and Analog Study	Not feasible to be provided due to proprietary design details	As per design standard

33	4.12.1	The maximum allowed temperature within the enclosure shall be 5°C above ambient temperature. Adequate ventilation fans/suitable arrangement shall be provided to meet the above and also to account for heat dissipation of the coolers.	Approach would be Temperature inside canopy = Ambient + 8 Deg	Tender Conditions prevail
34	4.12.2	The compressor package shall consist of single enclosure for Compressor and Electric Motor. The equipment shall be mounted on one common skid. The noise level of the enclosure shall be restricted to maximum 70 dB (A) at 1 meter from the enclosure.	The Enclosure will be designed considering to restrict maximum noise level to 75+/- 3 dBa @ 1m distance in free field condition	Tender Conditions prevail
35	4.12.5	All the pressure, temperature, lube oil pressure, coolant temperature, shall be visible from outside of enclosures as per the design of the manufacturer through gauge panel.	All the indicators for pressure, temperature of gas shall be visible from outside of enclosures. For rest of the parameters same can be viewed from PLC/locally.	Tender Conditions prevail
36	4.13	Piping	Gas piping/ tubing at 3rd stage discharge will only be in SS-316, with SS fittings,  Rest all piping /tubing will be Combination of Flanged & screwed connections with CS material (pipes, Fittings & Flanges) as per application requirement & standard design.  This is as per manufacturing standard design.	Tender Conditions prevail
37	4.13.5	The instrument air tubing material shall be minimum SS304 inside the compressor from main distribution header to instruments.	We shall provide SS304.	NOTED
38	4.13.7	Bidder shall furnish a basket strainer fitted with adequate size mesh at the gas inlet before duplex filter.	We shall provide Y strainer considering ease of maintenance.	Tender Conditions prevail
39	4.13.8	Pressurized lubricating oil lines downstream of the filter (with the exception of castin-frame lines or passages) shall be made of austenitic stainless steel.	After oil filter inbuilt oil galleries are provided, & standard Brass NRV provided at forced lubrication point.	NOTED
40	4.13.9	External drain & vent piping shall be Carbon Steel and not less than 1" nominal size. However, all the internal drains shall be SS 300 series material.	Package oil drain will be of 1/2" as per manufacturer standard.	NOTED
41	4.13.16	Following certificates have to be submitted for piping fabricated at Site & shop a. Electrode qualification test procedure b. Proposed Welding procedure specification with impact test c. Electrode qualification test results d. Procedure qualification test results and final WPS e. Welder's qualification test	Test Certificates not considered as welding in piping not involved.	NOTED
42	6.5	SOFT STARTER/INCOMER PANEL	We shall consider star delta type starter for motor.	Tender Conditions prevail
43	8.6	All the process connection for instruments should have isolation valve of SS only.	For instrument isolation brass type needle valve considered.	Tender Conditions prevail

44	8.15.11	Vendor shall submit the following test certificates and test reports for purchaser's review:- i. Material test certificate with detailed chemical analysis from foundry (MIL Certificate). ii. Certificate of radiography / x-ray for any welded joint.	There is no inclusion of welding for MFM hence the submission of the test certificates not considered	Tender Conditions prevail
45	8.15.12	b. Equipments / instruments / systems located in electrically hazardous areas shall be certified for use by statutory authorities for their use in the area of their installation. In general, the following verification shall be provided by the vendor.: Bidder shall provide certificates (from BASEEFA FM, UL, PTB, LCIE etc.) from country of origin for all intrinsically safe/flameproof protected by other methods equipment/instrument/systems, which are manufactured outside India. If required, bidder shall provide necessary certification / approvals / authentication, for all such intrinsically safe /flame proof equipment / instrument / systems, by the Indian authority- Chief Controller of Explosive (CCOE) / PESO, Nagpur, India.	CCOE or its equivalent certificate (FM, CSA, ATEX, UL, CMRI) whichever applicable & available will be provided.	Tender Conditions prevail
46	10.2	Mechanical Run Test (MRT)	MRT will be as per the manufacturer's standards	Tender Conditions prevail
47	10.4	Pressure and temperature of gas shall be considered at purchaser's boundary limit (or before filter unit of package if provided) and as indicated in the Instrumentation schedule; if provision not available then supplier shall install necessary pressure and temp measuring devices.	Pressure and temperature at compressor inlet flange will be considered for FAT.	NOTED
48	12.2	PAINTING (PRIMER & FINISH COAT)	Paint shall be applied as per manufacturer's standard paint specification	Tender Conditions prevail
49	23.0	Compressor Instrumentation	All the instrumentation will be as per the submitted P&ID and Instrument Schedule, all instruments will not be feasible as it will increase the size of control panel considerably which is not feasible.	Tender Conditions prevail
50	24.0	<b>QUALITY ASSURANCE PLAN</b>  - HYDROTEST OF - PRESS.VESSELS  <b>Heat Exchangers (at sub-vendor works):</b> - WPS / PQR – Welder Qualification	Inspection by owner/TPI not considered  '-Welding not applicable	As per approved QAP
51	25.0	<b>Preferred makes</b>	Kindly approve below makes :	
52		SUCTION & DISCHARGE FILTER:	As not mentioned in list SUCTION FILTER:  DISCHARGE FILTER: Kinldy approve ACIL standard discharge filter with Paker	Tender Conditions prevail

			filter element.	
53		<p>4. Each compressor package shall be provided with following indicators:</p> <p>1-Pressure indicator at Inlet and each stage discharge  2-Temperature indicator at each stage suction and discharge  3-Oil pressure indicator on each pressure lubrication system  4-Oil Cooler outlet temperature  5-Oil levels  6-Hour meter  7-Compressor jacket water temperature</p>	<p>'As per our last supplied VIP Package to GGL, following gauges / indicators are only provided suitable for the application as well as due to space constraints for mounting the gauge panel ::</p> <p><b>01 nos Suction pressure, 01 nos final discharge pressure and 01 nos oil pressure gauge.</b></p>	Tender Conditions prevail
54		<p>5. Each package shall be furnished with following tripping circuit:</p> <p>(e) Low/High discharge pressure at each stage.  (g) Low cooling water flow.  (h) On high vibration.on activation of vibration switch.</p>	<p>'(e) Low/High discharge pressure at each stage-Only high discharge pressure trip is applicable for interstage and final pressure, hence same in considered.</p> <p>(g) Low cooling water flow.-Beign air cooled machine cooling water is not applicable</p> <p>(h) On high vibration.on activation of vibration switch.-As per earlier supply , we have considered vibration transmitter instead of vibration s/w.</p>	<p>Tender Conditions prevail</p> <p>NOTED</p> <p>Tender Conditions prevail</p>

**CLARIFICATIONS FOR PREBID QUERIES**

BIDDING DOCUMENT NO. : MEC/23R8/01/51/D2/T03/SU/6515

SUBJECT OF BIDDING DOCUMENT : Tender for SUPPLY OF CNG RECIPROCATING COMPRESSORS

**Part C - 400 SCMH (AVERAGE) ELECTRIC MOTOR VARIABLE SUCTION HYDRAULIC CNG RECIPROCATING BOOSTER COMPRESSORS:**

SI No	Clause No	Page No.	Tender Specification	Deviation Taken	MECON/BGL Clarifications
1	38	78/579	<p>CPBG will be in 03 Parts exclusive of all taxes and duties as per SOR.</p> <ol style="list-style-type: none"> <li>10% of Total awarded value (including supply, erection, commissioning, performance test &amp; AMC) valid till 03(three) months beyond the expiry of supply and Installation period plus Warrantee / Guarantee period. In case of delay in delivery/completion, CPBG no.1 will be extended so as to compensate for the delay period before the expiry or else the BG will be en-cashed.</li> <li>Second BG to be submitted for 10% of balance work value w.r.t Installation, commissioning &amp; Field performance test of Compressor Package including air compressor at site before three months from the expiry date of CPBG no.1. This CPBG validity shall be initially for a period of one year extendable further till the date of completion of last Installation, commissioning &amp; PGT with 3 months grace period.</li> <li>Third BG to be submitted for 10% of total AMC value but not less than 10 % of the 30% value of CPBG no 1 before three months from the expiry date of CPBG no.1. This CPBG validity shall be till 03(three) months beyond the expiry of 3 years AMC period of the last compressor commissioned.</li> </ol> <p>CPBG no. 1 shall be returned to the contractor/supplier On receipt of CPBG nos. 2 &amp; 3</p>	<p>CPBG requirement as mentioned in tender is really high and will have major commercial impact on our pricing. We will provide CPBG in Two parts</p> <ol style="list-style-type: none"> <li><b>For Supply Part</b> - 10% of contract value (including supply, erection, commissioning, performance test but excluding AMC &amp; Taxes) valid till 03(three) months beyond the expiry of supply and Installation period.</li> <li><b>FOR AMC Part</b> - 10% of annualized contract value of AMC (Excluding Taxes) valid for 12 months renewable on every year basis.</li> </ol> <p>Also, Bank guarantees will be provided on individual package/call up order basis. We are certain that these two CPBGs cover employers risk. It is pertinent to highlight that bank guarantee is one of the most valuable and scarce resource for an organization of our nature. Providing a large value BG for long period of time will add inadvertently to the cost of the package which we feel is not necessary.</p> <p>Also there is a significant opportunity cost involved with such high value and long validity period Bank guarantees. Providing a large value BG for long period of time also blocks the BG limits; which could be used for other high value projects and can provide the same revenue several times during the period. Please Confirm.</p>	<p>Tender conditions prevail.</p>

			and receipt of confirmation from the issuing bank.  Order value as mentioned above will be exclusive of GST.		
2	20	179/579 180/579	twelve(12) months from the date of the first commercial operation of the Plant for which the materials supplied under the Contract form a part thereof, or twenty four (24) months from the date of last shipment	Guarentee period will be twelve(12)months from the date of the first commercial operation of the Plant for which the materials supplied under the Contract form a part thereof, or Eighteen (18) months from the date of shipment for individual package which is our standard guarantee period. Please Confirm.	Tender conditions prevail
3		275/579	Completion Schedule - Group -C: Eight nos. of compressors shall be delivered in 3 months from remaining full quantities will be delivered in 5 months from date of FOA/ WO.	Bidder's understanding is that Eight nos. of compressors shall be delivered in 3 months from date of FOA/ WO. Please Confirm.	BIDDER'S UNDERSTANDING IS CORRECT. The balance compressors by 5 months from date of FOA
4	1.1	294/579	TERMS OF PAYMENT for Supplies	We propose following payment terms against supply  A) 90% of supply value including string test as applicable will be paid progressively by Owner within 30 days against receipt of material / equipment at site against individual package.  B) 10% payment: On completion of Installation, erection, alignment, commissioning & Performance test of each compressor units. However, if, commissioning could not be completed within 90 days after supply OR PT could not be performed within 120 days after supply due to non-availability of site in all respects / gas, 10% payment against erection and commissioning shall be released to the successful bidder against receipt of declaration that bidder will complete E/T/C as per client instruction.	Tender conditions prevail
5				Please confirm daily Number of shifts along with Number of operators for operation to be considered.	As per Industry norms and statutes
6				Please confirm if State or Central minimum wages are to be considered.	Statutory requirements as per the Tender are to be considered.  Tender conditions prevail.
7			Warantee Period	Warrantee Period is not defined in tender. Bidder understands that warrantee period will be 12 months from date of commissioning or 18 months from date of dispatch of package which will be applicable on individual package basis.	Refer clause no.31 of SCC. Tender conditions prevail.
8	75	292/579	In case of start of installation, testing & commissioning of CNG compressor package gets delayed on account of owner by more than one year from the date of delivery on site / BGL store, bidder's quoted rates (excluding service tax) towards installation, testing & commissioning of CNG compressor package(s) and operation & maintenance (O&M) shall be increased by 5% per annum on	5% per annum increase in case of delay in I/T/C is not sufficient as in one year duration Minimum wages itself increase by 5% two times. Hence, we request you to modify this clause as "In case of start of installation, testing & commissioning of CNG compressor package gets delayed on account of owner by more than one year from the date of delivery on site / BGL store, bidder's quoted rates (excluding service tax) towards installation, testing & commissioning of CNG compressor package(s) and operation & maintenance (O&M) shall be increased by <b>7.5% per annum</b>	Tender Conditions prevail

			annual basis subject to maximum of 10%.	on annual basis subject to maximum of <b>15%</b> . Please Confirm.	
9	Table 14.2; Sl. No.10	359/579	Noise level at 1 meter from enclosure (required 70 dBA max)	We request you to modify this clause as "Noise level at 1 meter from enclosure (required 75 dBA max). Please Confirm.	Tender prevail Conditions
10	xxiii	506/579	The provision for overhead mounting of cascade {3000 water liter capacity (45 cylinders of 75WL each) with approximate weight of 9 tons}	The clause should be the provision for overhead mounting of cascade {3000 water liter capacity ( <b>40 cylinders</b> of 75WL each) with approximate weight of <b>6.5 tons</b> } as for 3000WL capacity cascade max Wt is 6.5 T and it will require 40 Number of cylinders of 75WL capacity.	Tender prevail Conditions
11	1.8.8	507/579	Relief Valves shall be provided at suction and discharge and each inter stages of compressor with setting	We will provide relief valves at discharge only as we have single cylinders two stage compression. However we confirm that no safety requirement is bypassed due to this. Please confirm acceptance.	As per design standard
12	2.1.2	509/579	Air compressor with discharge pressure of 7 kg/cm2 (g) suitable for 1.5 KW Flame proof electric motor rating	Electric motor for Air compressor is always non FLP. As air compressor is kept in control room there is no requirement of FLP motor for air compressor.	Tender prevail Conditions
13	Clause 5.4; Sl. No.3	516/579	Preferred makes	We request you to add M/s. Shyaam Switchgears Pvt Ltd for FLP Switchgear	Vendor approval as per tender procedure
14	Clause 5.4; Sl. No.12	517/579	Preferred makes	We request you to add M/s. DK Lok make for Relief valves.	Vendor approval as per tender procedure
15	Clause 6.1.7; Sl. No. b	519/579	Temp indicator 1st, 2nd stage discharge and after-after cooler.	As design of our booster consist of two stage single cylinder; temp transmitter at each stage discharge is not possible. Final stage temperature will be displayed on PLC.	As per design standard
16	Clause 6.1.7; Sl. No. c	519/579	Pr indication 1st, 2nd stage discharge, high & med bank. Pr switch, 2nd stage discharge, high & med bank.	As design of our booster consist of two stage single cylinder; pressure indicator at each stage discharge is not required. We will provide pressure indicator at suction & discharge only.	As per design standard